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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,269	09/18/2003	Byung-Kwon Kang	5000-1-420	7114
33942	7590	07/21/2005	EXAMINER	
CHA & REITER, LLC 210 ROUTE 4 EAST STE 103 PARAMUS, NJ 07652			GOLUB, MARCIA A	
			ART UNIT	PAPER NUMBER
			2828	
DATE MAILED: 07/21/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/665,269	Applicant(s) KANG ET AL.	
	Examiner Marcia A. Golub	Art Unit 2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 9/18/2003
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 9/18/2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

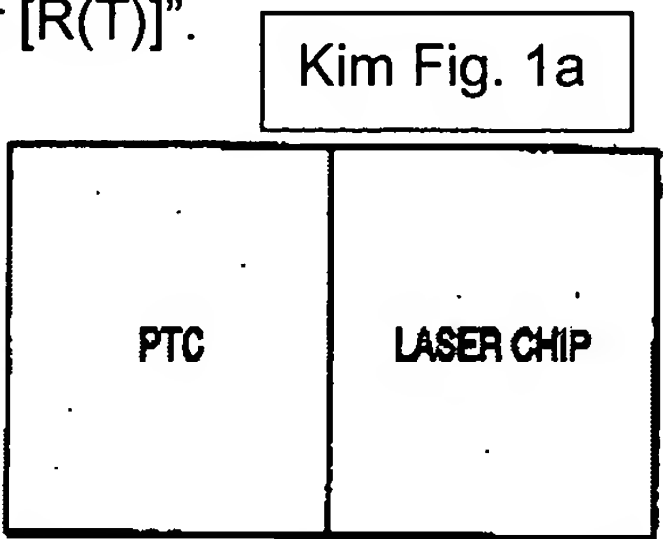
***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. (U.S. Pat 5,680,410) in view of Glance et al. (U.S. Pat 5,907,569).

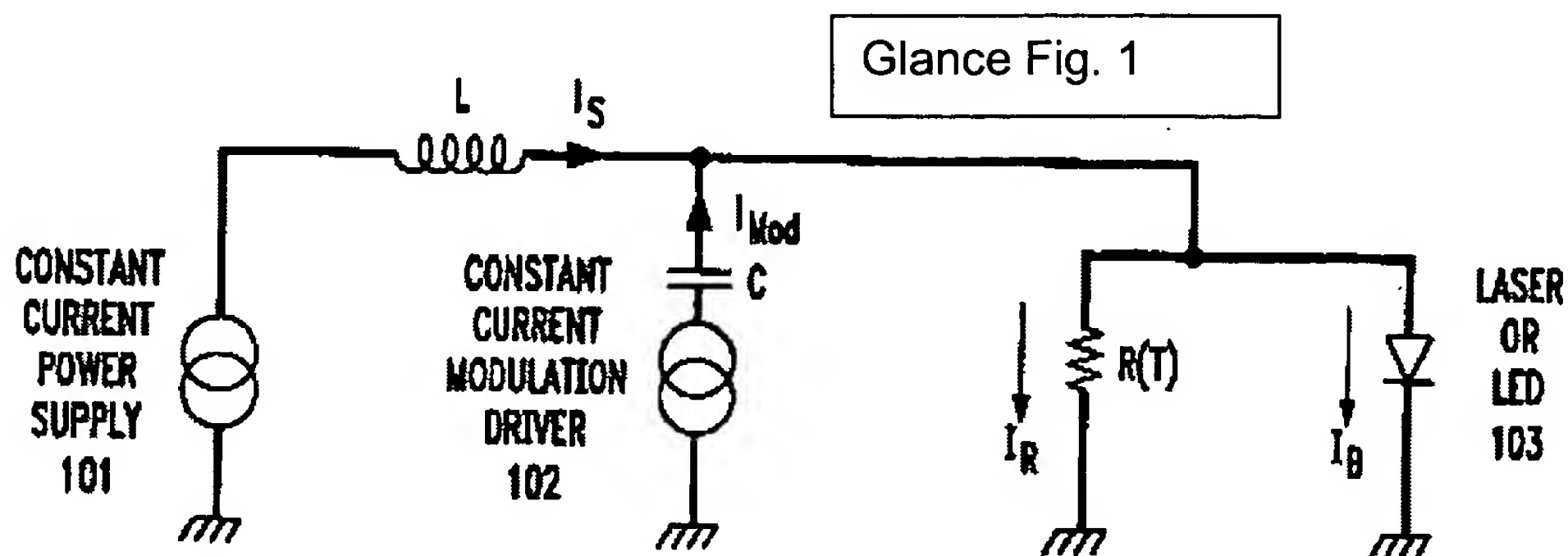
Regarding claim 1, Fig 1a of Kim discloses “a plate-shaped thermistor having a positive temperature coefficient so that resistance of the thermistor increases according to an increase of an environmental temperature” [column 2 lines 18-23] and “a semiconductor chip mounted on a surface of the thermistor” [column 2 lines 44-46]. Kim does not disclose “a driving means for applying a predetermined voltage to the thermistor”. However, to do so is well known in the art, as taught by Glance. Fig 1 of Glance discloses “a driving means [101] for applying a predetermined voltage to the thermistor [R(T)]”.



It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Glance into the device of Kim by

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providing a driving means for applying a predetermined voltage to the thermistor. The ordinary artisan would have been motivated to modify Kim in the manner set forth above for at least the purpose of providing a signal to the thermistor to ensure proper temperature control of the laser chip.



Regarding claim 5, Fig 1a and column 2 lines 44-46 of Kim discloses “a thermistor having a positive temperature coefficient and a semiconductor chip thermally coupled to the thermistor”. Kim does not disclose “a plurality of electrodes, coupled to the thermistor, arranged to connect a voltage source to the thermistor”. However, Fig 1 of Glance discloses a power supply [101] connected to the thermistor. It is well known in the art that a plurality of the electrodes is needed in order to connect a power supply to the thermistor.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to attach “a plurality of electrodes to the thermistor, arranged to connect a voltage source to the thermistor”. The ordinary artisan would have been motivated to modify Kim in the manner set forth above for at least the purpose of

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providing a signal to the thermistor to ensure proper temperature control of the laser chip.

Regarding claims 2 and 6, Kim and Glance disclose everything claimed, as applied above, except they do not specify that the thermistor has heating characteristics defined by equation  $P = \frac{V^2}{R}$ . However, this equation is inherent to the operation of the thermistor. This equation is characteristic to the operation of any device with internal resistance and a voltage drop across it and can be found in any analog circuits textbook.

Regarding claims 3 and 7, Kim discloses everything claimed, as applied above, but does not disclose “a voltage source connected to the first and second electrodes” connected to the thermistor. However, Fig 1 of Glance discloses a power supply [101] connected to the thermistor. Also, it is well known in the art that a plurality of the electrodes is needed in order to connect a power supply to the thermistor.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Glance into the device of Kim by attaching a plurality of electrodes to the thermistor, and then attaching a power supply to the first and second electrode. The power supply could be chosen to provide a predetermined voltage to the thermistor. The ordinary artisan would have been motivated to modify Kim in the manner set forth above for at least the purpose of providing a signal to the thermistor to ensure proper temperature control of the laser chip.

Regarding claim 4 and 8, Fig 1 of Kim and Glance discloses everything claimed, as applied above, in addition Kim discloses "the semiconductor chip to be a semiconductor laser chip capable of emitting light through one end of the semiconductor chip" [column 1 lines 7-10].

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim and Glance as applied to claim 5 above, and further in view of Nagatomo et al. (U.S. Pub. 2004/0208652).

Kim and Glance disclose everything claimed as applied above, but do not disclose the semiconductor chip to be a semiconductor optical amplifier. However, it is well known in the art and Nagatomo teaches in paragraph 63 that a semiconductor laser can be an amplifying medium for a semiconductor optical amplifier.

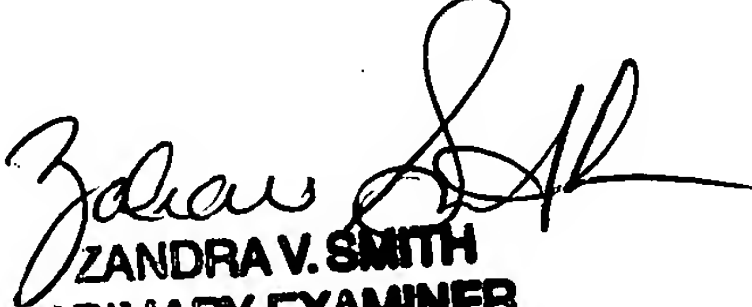
It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Glance and Nagatomo into the device of Kim by specifying the semiconductor chip to be a semiconductor optical amplifier. The ordinary artisan would have been motivated to modify Kim in the manner set forth above for at least the purpose of creating a light source feasible for the operation of the optical communication module.

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marcia A. Golub whose telephone number is 571-272-0218. The examiner can normally be reached on M-F 9 am-6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on 571-272-1835. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
**ZANDRA V. SMITH**  
**PRIMARY EXAMINER**